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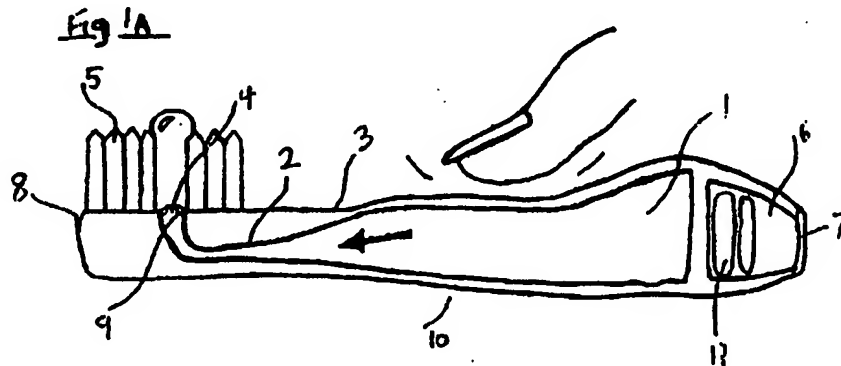
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(54) Abstract Title

A disposable reservoir toothbrush

(57) A disposable toothbrush 3 comprises a bristled head 8 and a valve 9 disposed in a single body incorporating a toothpaste reservoir 1 which is able to regain its original shape and disgorge toothpaste to the bristles 5 formed on the head 8. Preferably pressure exerted on the toothpaste reservoir 1 pushes toothpaste from the reservoir 1 to the bristles 5 via a pliable, rubber valve 9 which allows forward toothpaste flow yet restricts backward toothpaste flow. The single body may have a separate compartment 6 to hold a mouthwash and/or breath-freshener. Preferably the toothpaste reservoir 1 has a hinged section (12, Fig 13) which snaps shut to secure a separate sachet of toothpaste (13, Fig 13) and may include a tongue cleaner (14, Fig 14) attached externally of the single body. Advantageously the disposable toothbrush 3 is more hygienic, portable and convenient than conventional toothbrushes.



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Fig 1

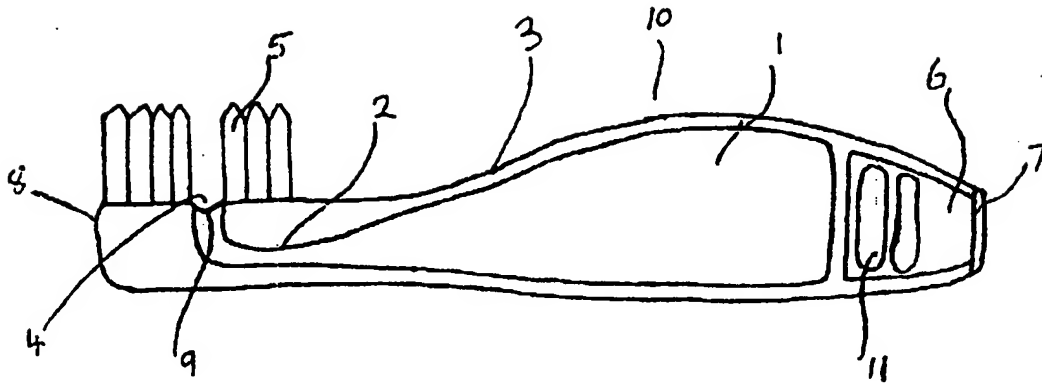


Fig 2

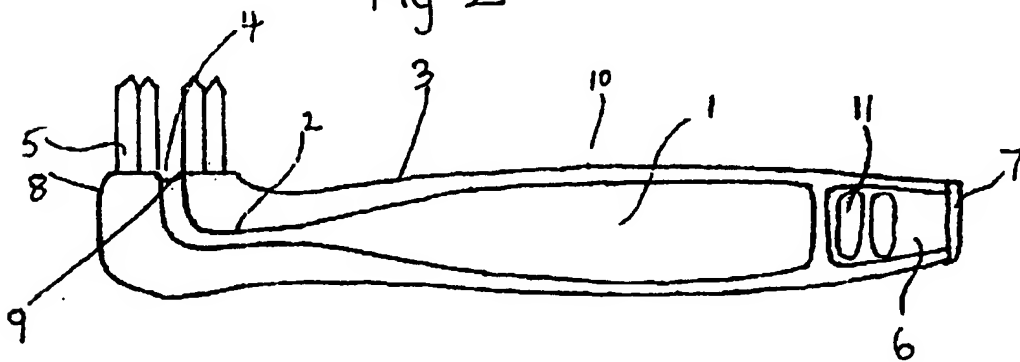


Fig 3

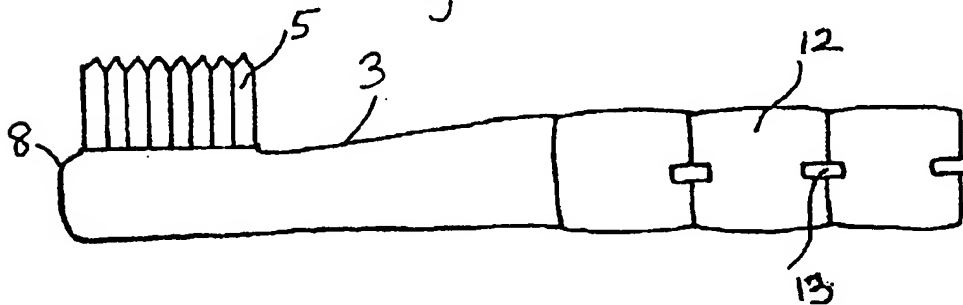


Fig 1A

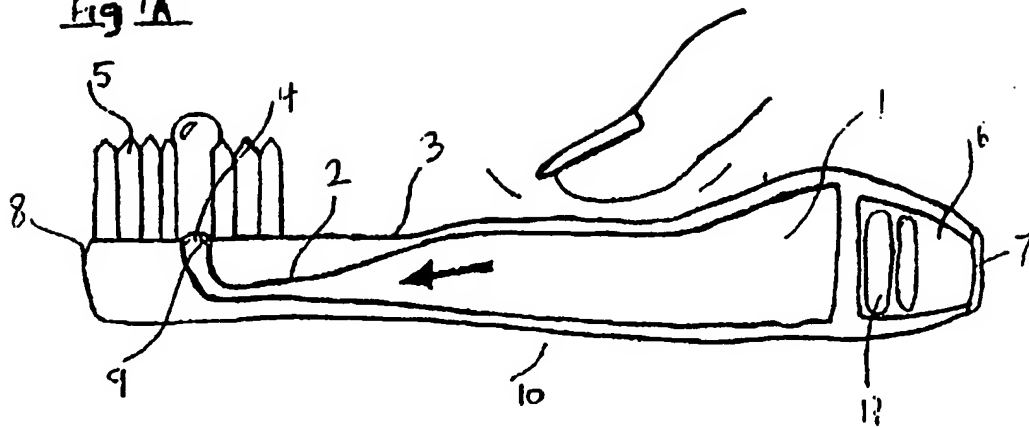


Fig 2A

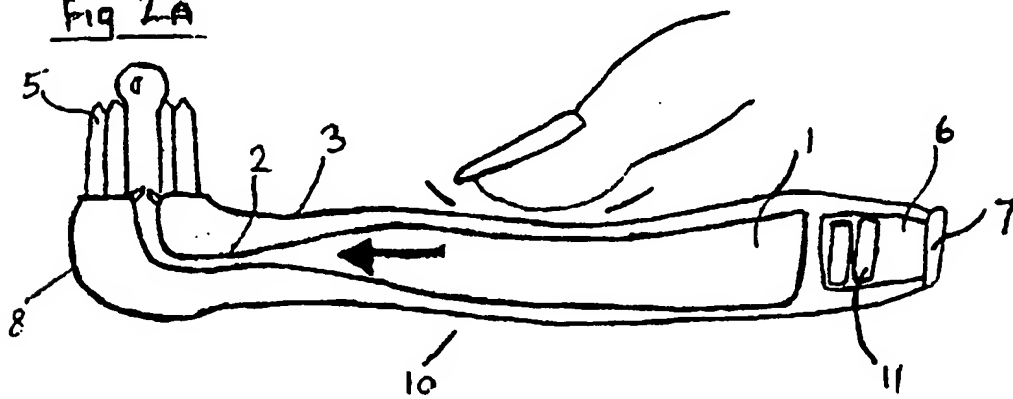
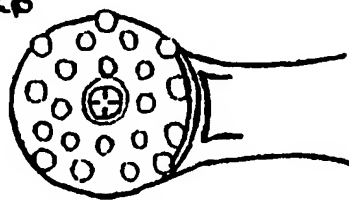


Fig 2B



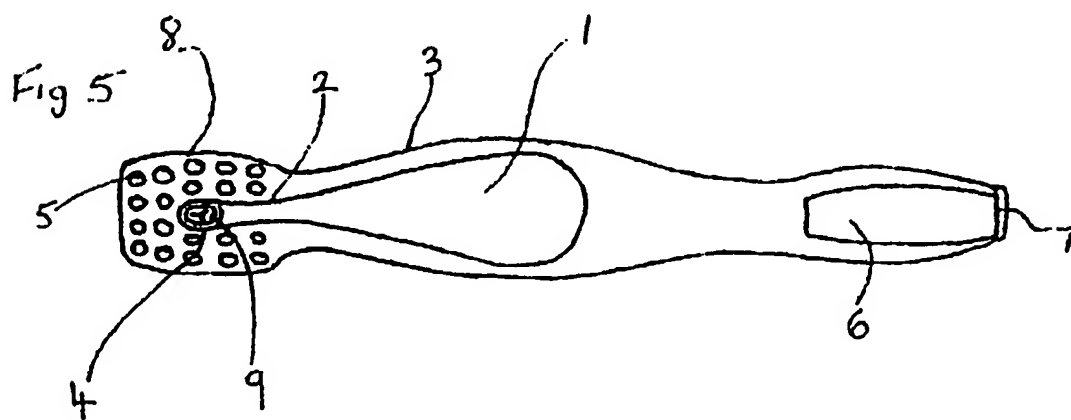
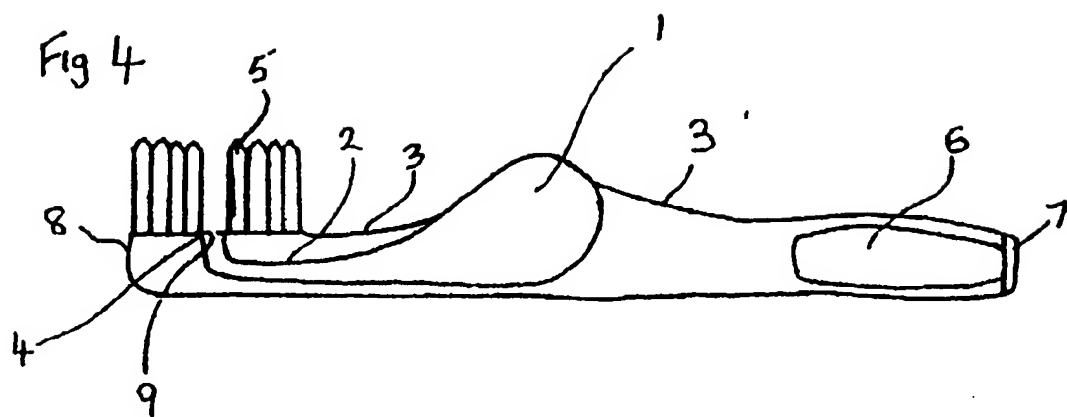
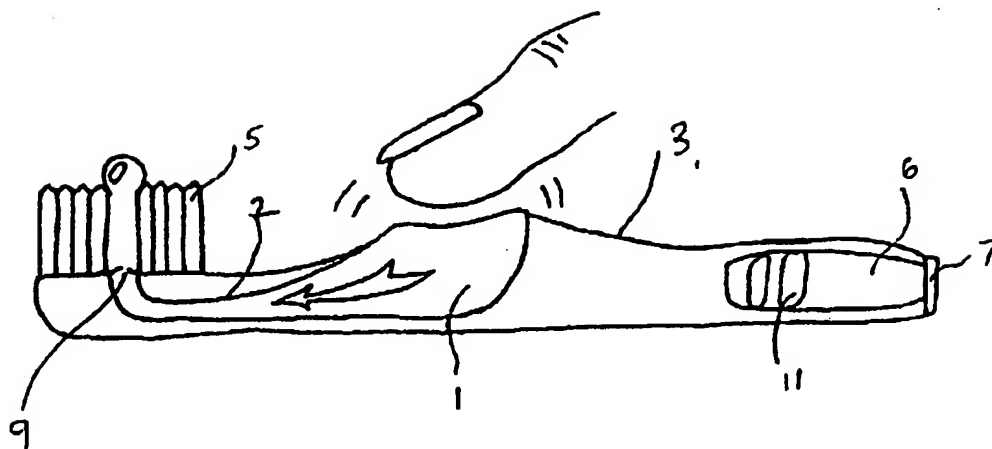
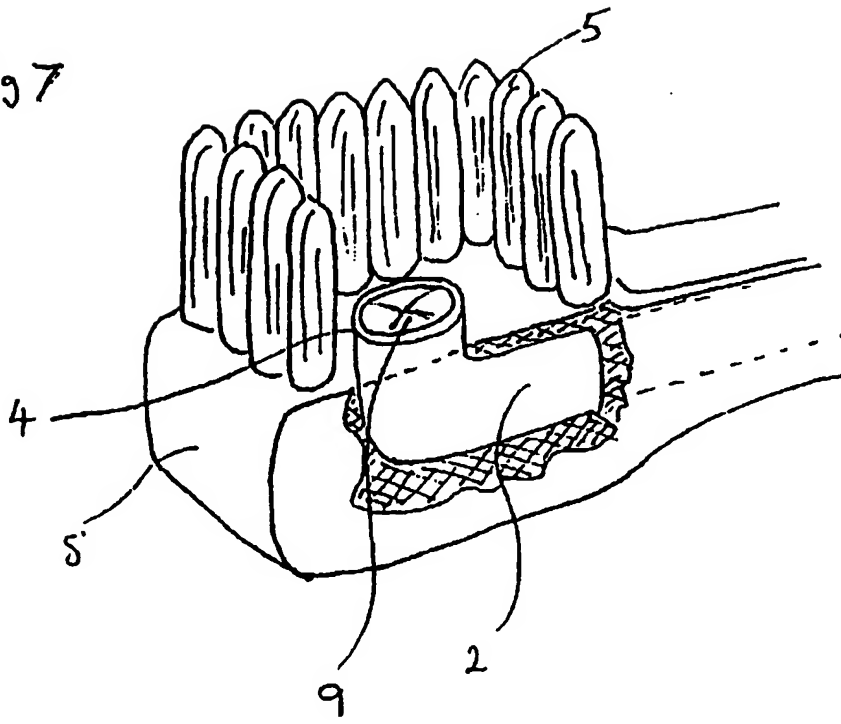


Fig 6



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fig 7



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Fig 8

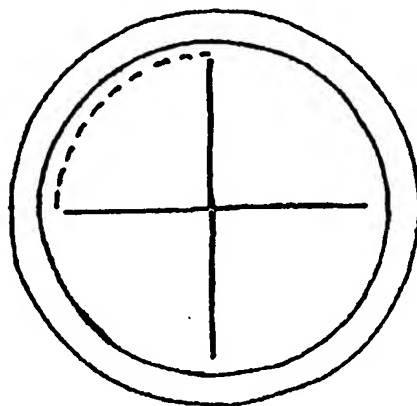


Fig 9



Fig 10

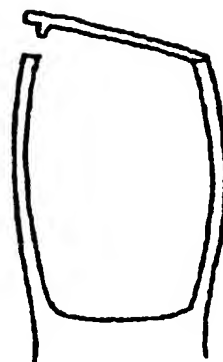
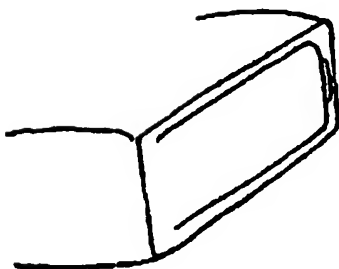


Fig 11

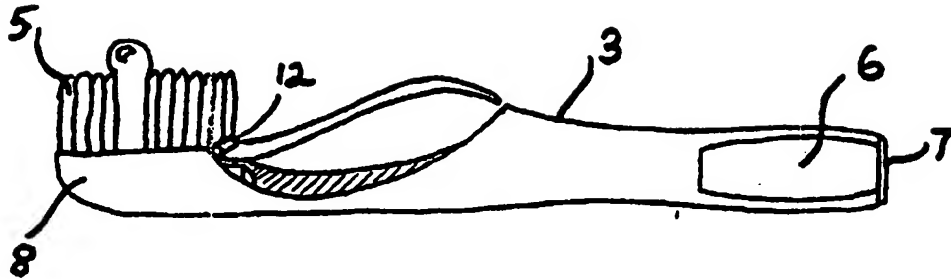
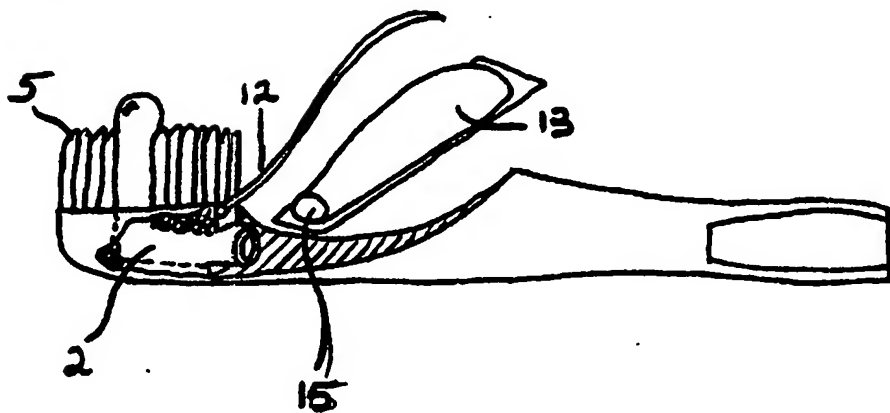


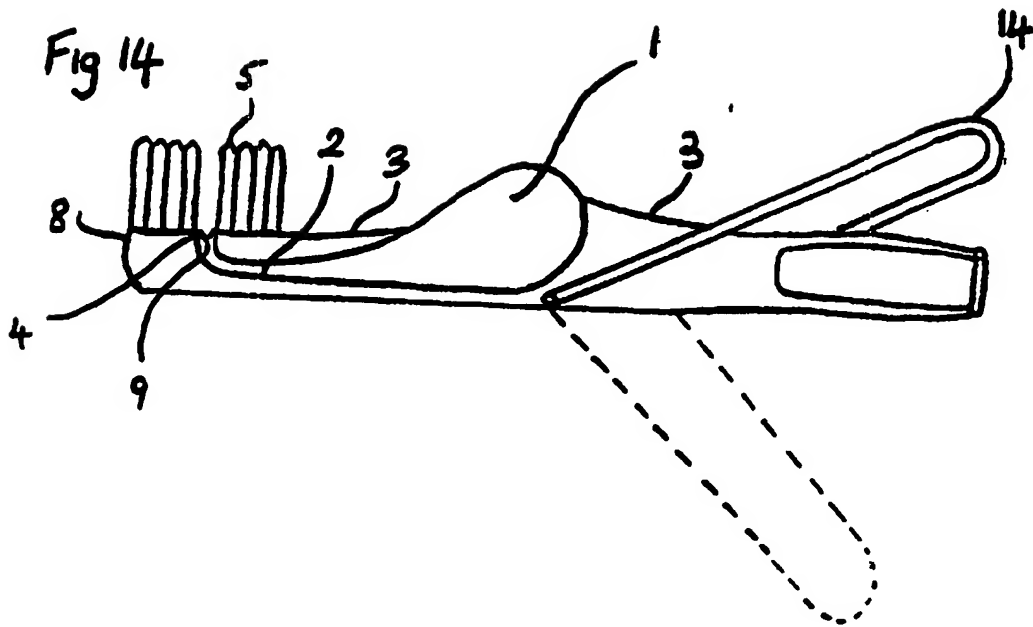
Fig 12



Fig 13







**DISPOSABLE RESERVOIR TOOTHBRUSH**

The present invention relates to apparatus and methods used in the field of dental and oral hygiene. More specifically it relates to integrating a toothbrush, toothpaste and mouthwash in  
5 one single unit. The whole unit is then disposable.

The necessity to use toothpaste, toothbrush and mouthwash for oral hygiene has long been established. Indeed there have been countless designs employed. The common procedure is to use a rigid design of toothbrush upon which a set amount of tooth cleaning substance is placed  
10 on the top of the brush bristles. This cleaning substance is from a separate container. In order to further the process of dental hygiene a mouthwash is commonly used meaning that a third item has to be remembered.

The object of this said invention is to brush and clean teeth and to freshen breath after brushing.  
15 The remove plaque and bacteria from the mouth, this invention provides a disposable unit for dental hygiene.

The purpose of the said invention is to eliminate the tedious task of having to employ three items in order to brush and clean the teeth, and freshen the breath after brushing this has been the  
20 desire and objective of many people and cultures for a long period of time.

The said invention is of easy portable size this can be varied depending on its retail outlet and the length of time that the toothbrush will be used for. A four-inch long disposable unit will only need a small reservoir of tooth cleaning substance to last up to a few days. Where as general  
25 domestic house hold users will need longer use before disposing. Therefore the design hereby described can be varied and adapted according to its market place.

The invention here mentioned makes easier the process of packing dental hygiene equipment for travelling purposes. You have only one item to pack. This invention therefore eliminates the need to carry separate bulky toothpaste and mouthwash containers when taking holidays or any other like journeys.

The said invention being disposable is more hygienic. It does not allow bacteria to linger around the bristles week after week. It eliminates the build up of bacteria around the top of the toothpaste tubes when people forget to replace the cap. Packing for travel is easier and it increases the regular changing of the brush heads ensuring constant effectiveness of the brushes.

The life span of a conventional toothbrush is around 12 weeks. This depends on the quality of the bristles and the amount of pressure the user enforces and how often it is used and how many teeth they have in the mouth. Many people do not judge this time correctly and maybe using their toothbrushes when the brush can no longer be working to its best ability. Therefore, the present invention that can be adapted or designed for household use is a good indicator of when to change our toothbrush head in order to ensure maximum performance from the bristles. Once the unit is empty it can be discarded and a new one bought.

GB-A-2085717 reveals a reservoir toothbrush which comprises an elongate container for toothpaste which co-operates with a toothbrush member.

According to the present invention therefore there is provided a disposable toothbrush comprising a valved head, a single body incorporating a reservoir for toothpaste, said body being adapted to allow a toothpaste reservoir adapted to regain its original shape and to disgorge toothpaste onto bristles formed on said head.

The flow of tooth cleaning substance can be controlled via a valve made to cover the aperture in the centre of the head of the toothbrush, at the base of the bristles, this is the outlet for toothpaste from the reservoir which is incorporated into the handle. The size of the reservoir containing the toothpaste can vary accordingly, for only a few days use, or a calculation of the amount of  
5 toothpaste required for cleaning the teeth sufficiently for up to 12 weeks, as stated by the dental hygiene professionals.

Preferably the whole unit can be made from plastic materials of varying thickness, the thicker areas making up the rigid neck and head. The reservoir wall can be thinner, allowing the body of  
10 the design to be pressed; the material must be such that the body is able to regain its original shape. Also a separate sachet containing toothpaste can be inserted into the body of the toothbrush. With all of the designs the toothpaste is transported to the head of the brush via the orifice or channel in the brush neck.

15 The amount of toothpaste released onto the bristles can be controlled or restricted by the use of a valve covering the aperture in the toothbrush head.

Preferably the bristles of the toothbrush are made out of a nylon material. The bottom of the handle of the toothbrush may incorporate a small compartment 6. Herein, is held an amount  
20 which is varying of tablet form mouthwashes. The purpose of the here mentioned tablets are to enhance the freshening of the mouth after brushing and to further protect against plaque and bacteria.

The compartments can store small capsules of liquid mouthwash or effervescent tablet from, as  
25 mentioned about or they could be simply breath fresheners.

further more detailed description of the here mentioned invention is now described with reference to the accompanying drawings.

Fig 1, 2, 3 & 4 show varying designs of disposable toothbrushes.

- 5 Fig 1 & 2 comprises of the plastic external layer of varying thickness, the handle incorporates a reservoir to hold a tooth cleaning substance. From the reservoir 1 to the brush head 8 there is an orifice or channel 2.

10 The body of the toothbrushes shown if Figs 1 & 2 can be depressed as shown in Figs 1a & 2a on page 7.

On depression the toothpaste in reservoir 1 will move along orifice 2 up to the head of the toothbrush 8 and through the aperture 4 found in the centre of the brush head. The toothpaste will enter at the base of the bristle 5 and move upward to the top of the bristles.

15

The amount of toothpaste released can be controlled by valve 9, covering the aperture 4 in the head of the toothbrush 8. When depression of the body of the toothbrush 10 has ceased, the valve 9 will close and stop toothpaste from flowing this is to do with manual pressure.

- 20 The valve 9 is made from a very pliable rubber with a cross cut out of the middle as shown in Fig 7. This valve covers the aperture 4 as the toothpaste is forced along channel 2, it forces the valve 9 to open when the pressure is released from the handle. The body of the toothbrush 10 and the reservoir 1 regains its original shape. The toothpaste is sucked back slightly and the valve 9 is pulled close.

25

g 1 shows a slightly more filled reservoir 1, and an oblong or oval head 8. Fig 1a shows a working diagram of Fig 1.

Fig 2 shows a rounded head design. Fig 2a shows a working diagram of Fig 2.

5

Fig 3 shows a disposable toothbrush side view; half of the toothbrush is solid plastic material 3, with nylon bristles 5 attached to the head 8. The handle of the toothbrush is made of three compartments 12 containing tooth-cleaning substance. Each compartment 12 can be snapped from the handle at the point 13. The toothpaste contained within the compartment 12 can then  
10 be squeezed onto the bristles of the toothbrush.

Figs 4 & 5 comprise of a bubble reservoir 1, leading up to the head of the toothbrush 8. A rigid plastic handle containing a compartment 6 to store mouthwashes or breath-fresheners as described on page 3 with a flip top lid 7. The reservoir 1 is pressed down as shown in Fig 6.

15 The toothpaste then moves up the orifice 2 and through the valve 9 to the bristles of the toothbrush. When the pressure is released the toothpaste is sucked back slightly and the valve 9 is pulled closed. This restricts any further flow of the toothpaste.

Fig 8 shows the valve 9 comprising a piece of rubber material, which is pliable. The cross lines  
20 in the middle of the circular valve shown in Fig 8 indicates where you would cut to make an opening to allow the toothpaste through and will close to the original position when the pressure exerted on the reservoir 1 is released. It is situated at the base of the bristles 5 over the aperture  
4.

The tablet shown in Fig 9 is a tablet form mouthwash. It works on the principal that once dropped into water the tablet will effervesce and dissolve in the water leaving a mouth wash to rinse the mouth.

- 5 Fig 10 shows the end of the toothbrush it has a small compartment incorporated into it 6. Then secured by a flip top 7, containing mouthwash tablets marked 11 (see Figures 1a & 2a).

- All of these disposable toothbrushes shown can be adapted and designed with added fixtures, note Fig 11 showing hinged section 12 for application of a separate sachet containing toothpaste  
10 (see Fig12).

Fig 13, showing placement of sachet into body of toothbrush, piercing on contact with orifice 2 at sealed end 15.

- 15 Hinged section 12 snaps shut securing sachet 13.

Also Fig 14 showing added tongue cleaner marked 14, the purpose of which would be to clean the tongue from back to front with light strokes. This being made from the same plastic material as the toothbrush body or indeed any material found to be more suitable.

**CLAIMS:-**

1. A disposable toothbrush comprising a bristled head and a valve disposed in a single body,  
said single body incorporating a reservoir for toothpaste, said body being adapted to  
5 allow a toothpaste reservoir to regain its original shape and to disgorge toothpaste to the  
bristles formed on said head.
2. A toothbrush according to claim 1 wherein said toothpaste reservoir is separate and slides  
into the body.
3. A toothbrush as claimed in claim 1 or 2 wherein toothpaste is directed to the bristles of  
10 the brush by means of manual pressure.
4. A toothbrush as claimed in claims 1 to 3 whereby when pressure is exerted on the  
toothpaste reservoir, toothpaste is pushed forward through an orifice towards the head of  
the toothbrush thus controlling the flow of the toothpaste.
5. A toothbrush as claimed in claim 4 whereby the flow of the toothpaste is controlled by a  
15 valve, which allows forward flow onto the bristles, yet restricts backward flow.
6. A toothbrush as claimed in any preceding claim wherein the toothpaste reservoir is  
constrained *in situ* by a hinge.
7. A toothbrush as claimed in any preceding claim wherein the single body comprises a  
separate compartment adapted to hold mouthwash tablets accessible via a lid remote from  
20 the bristles.
8. A toothbrush as claimed in any preceding claim wherein the body is adapted to include a  
tongue cleaner attached externally to the body of the toothbrush.
9. A toothbrush substantially as herein described with reference to, and/or as illustrated in,  
Figures 1-13 of the accompanying drawings.
- 25 10. An assembly of a toothbrush as claimed in any preceding claim and a separate sachet of  
toothpaste therefor.





Application No: GB 0216524.9  
Claims searched: 1 - 10

Examiner: Beverley Lloyd  
Date of search: 27 August 2002

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.T): A4K (KBA, KBX, KEA)

Int CI (Ed.7): A46B 11/02, 11/04

Other: Online: WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2304553 A (BILSON) See especially Fig 2; paragraph 2, page 2 & paragraph 3, page 5	1 - 4 & 10
A	FR 2770112 A (BONNET) See especially Fig 2 & Abstract	-

8

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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